New England Common Assessment Program

Released Items 2005

Grade 6 Mathematics

Mathematics

1. On Saturday, Dora practiced playing her violin 5 times. Each time she practiced for 15 minutes. What is the total number of hours Dora practiced her violin on Saturday?

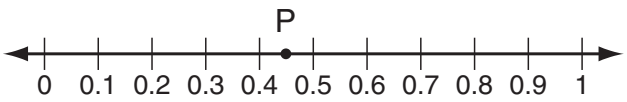
   A. $\frac{5}{15}$ hour

   B. $\frac{5}{6}$ hour

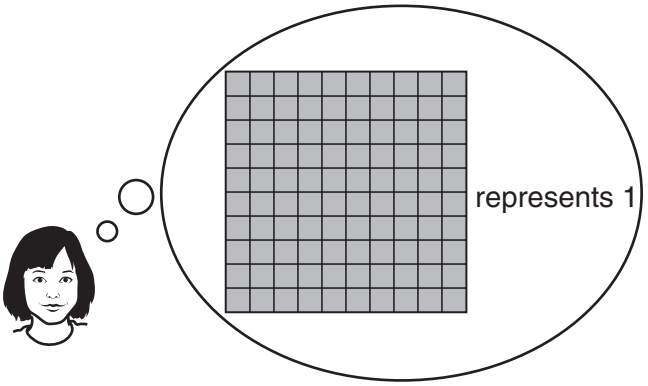
   C. $1\frac{1}{4}$ hours

   D. $2\frac{1}{2}$ hours

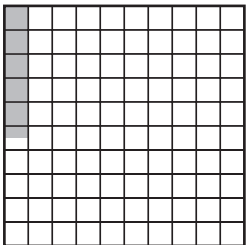
2 Look at this number line.



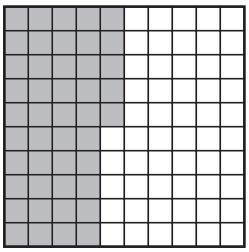
Which grid is shaded gray to represent the same decimal as the one marked with the letter P on the number line?



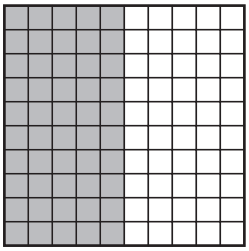
A.



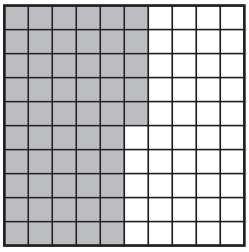
B.



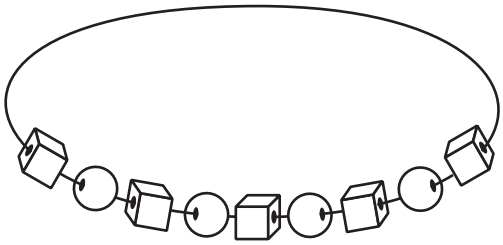
C.



D.



3 Samantha uses 4 round beads and 5 cube beads to make this necklace.



Samantha bought one package of 30 round beads and one package of 24 cube beads. How many of these necklaces can Samantha make?

A. 4

B. 5

C. 6

D. 7

4 A music teacher can arrange all of the chairs in the practice room into at least two rows with the same number of chairs in each row. Which number of chairs could **not** be in the practice room?

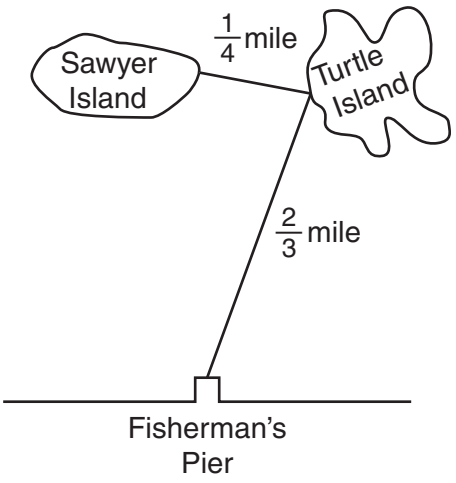
A. 25

B. 21

C. 19

D. 15

5 The map below shows the path a boat sailed.



The boat sailed from Sawyer Island to Turtle Island and then to Fisherman's Pier. What is the total distance the boat sailed?

A. $\frac{5}{12}$ mile

B. $\frac{3}{7}$ mile

C. $\frac{3}{4}$ mile

D. $\frac{11}{12}$ mile

6 Which property **must both** a rectangle and rhombus have?

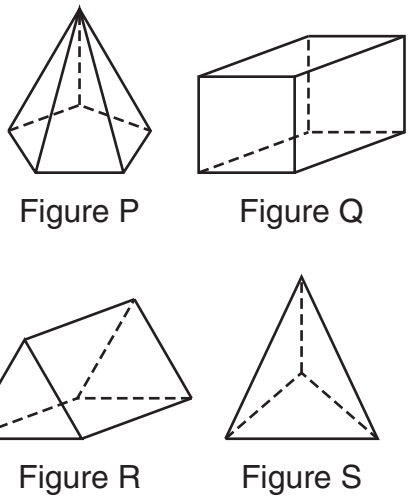
A. 4 right angles

B. 4 congruent sides

C. 2 pairs of acute angles

D. 2 pairs of parallel sides

7 Look at these figures.



Which two figures have the same number of faces?

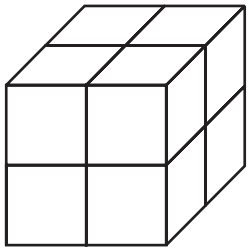
A. Figure P and Figure Q

B. Figure S and Figure R

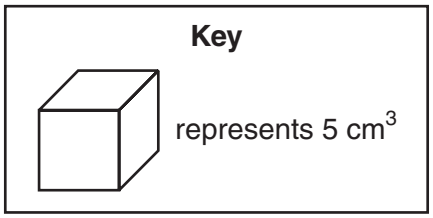
C. Figure P and Figure R

D. Figure S and Figure Q

8 Look at this structure.



Structure



What is the volume of this structure?

A. 8 cm^3
B. 20 cm^3
C. 40 cm^3
D. 60 cm^3

9 The table below shows the distance required for a car to stop when it is traveling at different speeds.

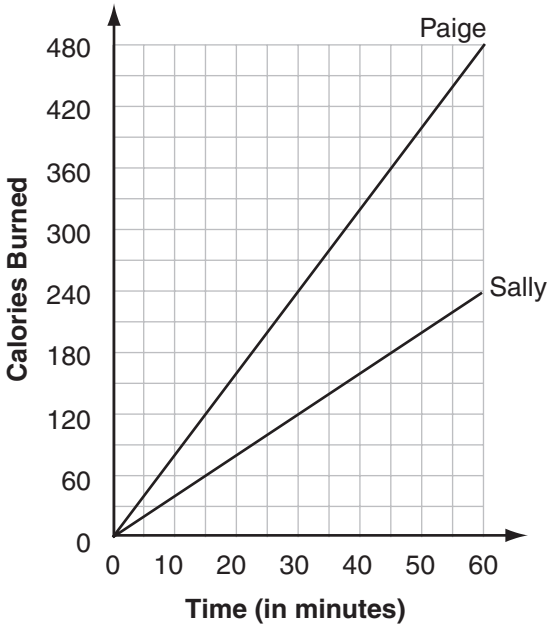
Speed	Distance Required to Stop
30 miles per hour	6 car lengths
40 miles per hour	9 car lengths
50 miles per hour	13 car lengths
60 miles per hour	18 car lengths
70 miles per hour	24 car lengths

If the pattern continues, what is the distance required for a car to stop if it is traveling at a speed of 80 miles per hour?

A. 27 car lengths
B. 28 car lengths
C. 30 car lengths
D. 31 car lengths

10 Paige rode her bike for one hour and Sally walked for one hour. The graph below shows the number of calories each girl burned.

Calories Burned During Exercise



How many more minutes did it take Sally to burn 120 calories than it took Paige?

A. 5
B. 15
C. 25
D. 30

11 Rosa is using number cards to make equivalent fractions, as shown below.

$$\frac{3}{12} = \frac{9}{\square}$$

What number belongs on the blank card?

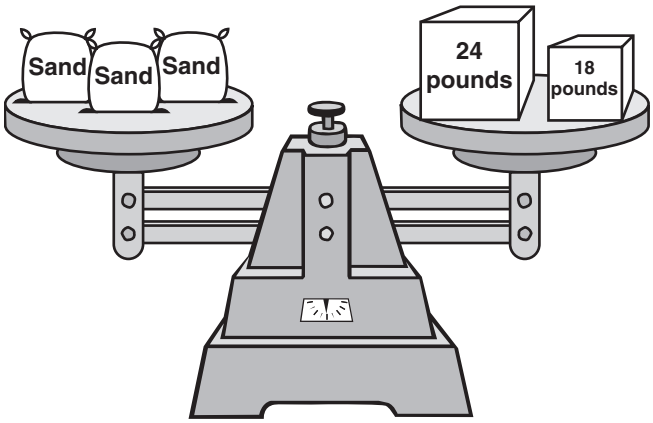
12 Draw an obtuse triangle.

13 Jesse and Kristy each bought a pizza of the **same size**.

- Jesse's pizza was cut into 3 equal slices. She ate 1 slice.
- Kristy's pizza was cut into 6 equal slices. She ate 2 slices.

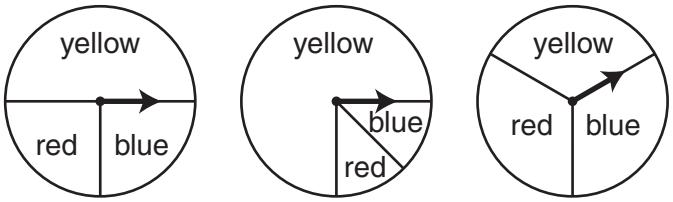
Explain using words, numbers, or pictures how Jesse did or did not eat the same amount of pizza as Kristy.

14 The scale shown below is balanced.



Each bag of sand weighs the same. How many pounds does one bag of sand weigh? Show your work or explain how you know.

15 Look at these spinners.



Spinner A **Spinner B** **Spinner C**

Julie, Greg, and Lori each used a different spinner to record the results of 40 spins.

a. This table shows Julie's results.

Julie's Spinner Results

Color	Frequency
yellow	12
blue	14
red	14

Which spinner did Julie **most likely** use? Show your work or explain how you know.

b. This table shows Greg's results.

Greg's Spinner Results

Color	Frequency
yellow	30
blue	5
red	5

Which spinner did Greg **most likely** use? Show your work or explain how you know.

c. Lori used the remaining spinner. Make a table to show the **most likely** results of Lori's 40 spins. Explain your reasoning.

Grade 6 Mathematics Released Item Information

Released Item Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Calculator Allowed	✓	✓	✓			✓	✓	✓	✓	✓		✓	✓	✓	✓
Content Strand[1]	NO	NO	NO	NO	NO	GM	GM	GM	FA	DP	NO	GM	NO	FA	DP
GLE Code	5-1	5-2	5-3	5-4	5-4	5-1	5-3	5-6	5-1	5-1	5-2	5-1	5-1	5-4	5-5
Depth of Knowledge Code	2	2	2	2	1	2	2	2	2	3	1	1	2	2	2
Item Type[2]	MC	MC	MC	MC	MC	MC	MC	MC	MC	MC	SA	SA	SA	SA	CR
Answer Key	C	B	A	C	D	D	A	C	D	B					
Total Possible Points	1	1	1	1	1	1	1	1	1	1	1	1	2	2	4

[1]Content Strand: NO = Numbers & Operations, GM = Geometry & Measurement, FA = Functions & Algebra, DP = Data, Statistics, & Probability

[2]Item Type: MC = Multiple-Choice, SA = Short Answer, CR = Constructed Response

New England Common Assessment Program

Released Items
Support Materials
2005

Grade 6
Mathematics

11 Rosa is using number cards to make equivalent fractions, as shown below.

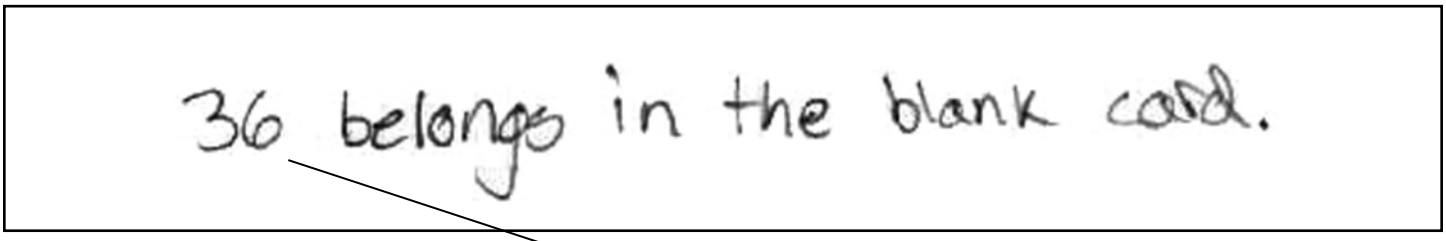
$$\frac{3}{12} = \frac{9}{\square}$$

What number belongs on the blank card?

Scoring Guide:

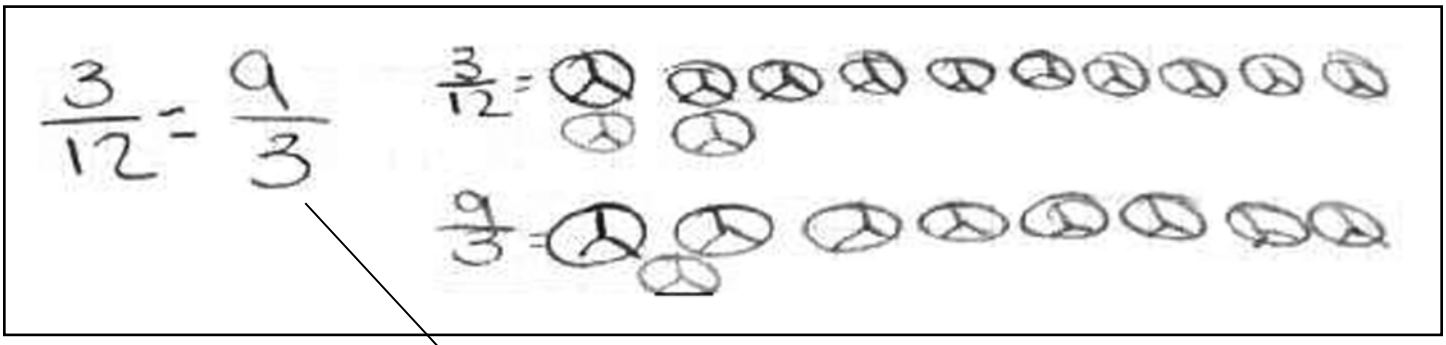
Score	Description
1	Student correctly gives the missing number, **36**.
0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.
Blank	no response

Score Point 1 (Example A)



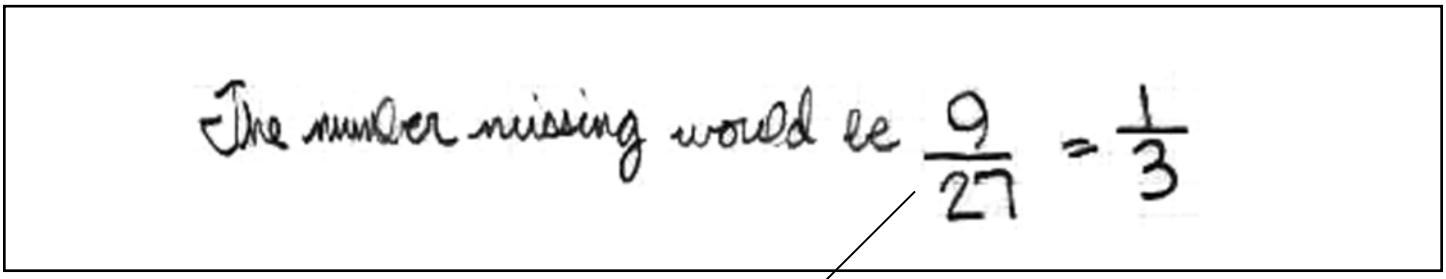
Student's answer is correct.

Score Point 0 (Example A)



Student's answer is incorrect.

SCORE POINT 0 (EXAMPLE B)



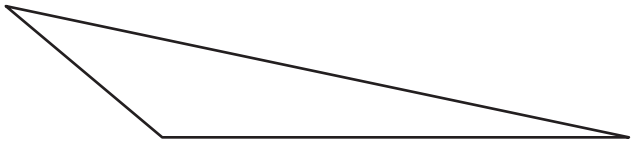
Student's answer is incorrect.

⓬ Draw an obtuse triangle.

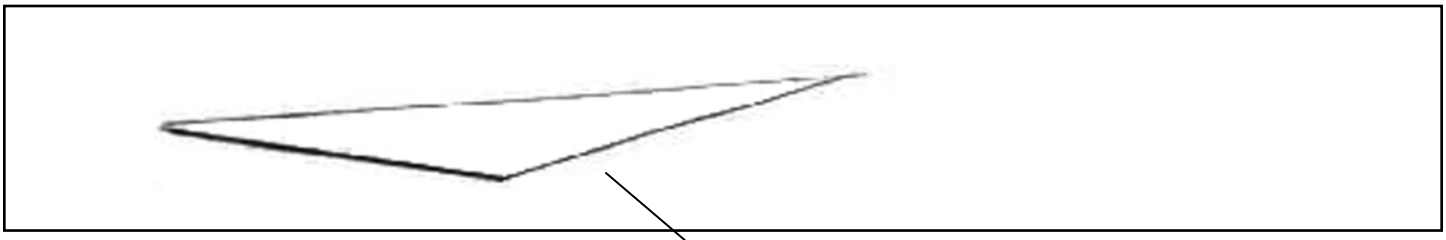
Scoring Guide:

Score	Description
1	Student correctly draws a triangle with an angle larger than 90 degrees.
0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.
Blank	no response

Sample Response:

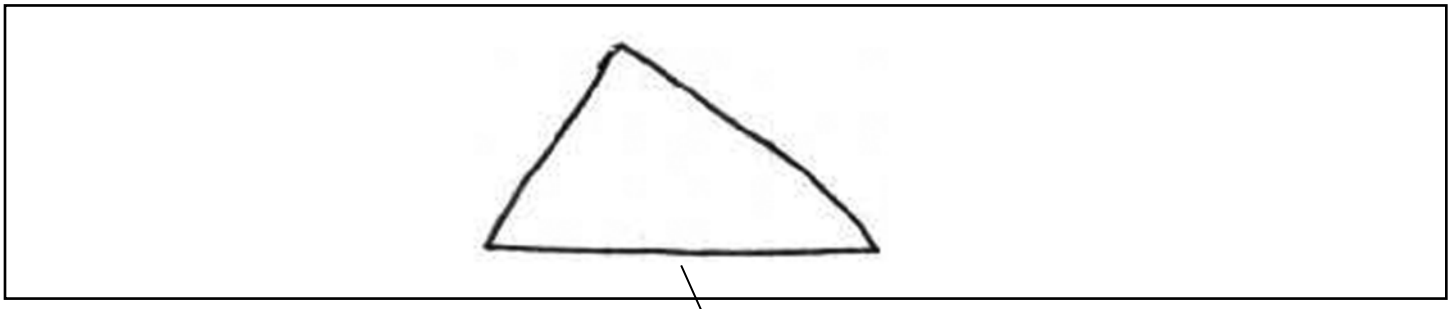


Score Point 1 (Example A)



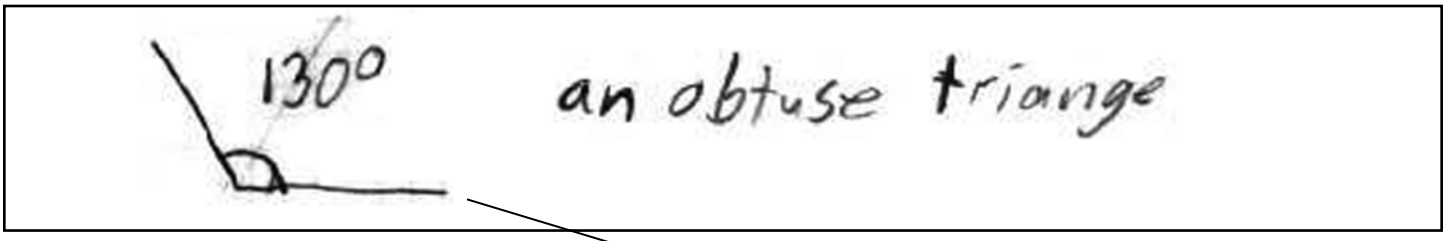
Student correctly draws a triangle with an angle larger than 90°.

Score Point 0 (Example A)



Student does not draw a triangle with an angle larger than 90°.

Score Point 0 (Example B)



Student draws an obtuse angle rather than a triangle with an angle larger than 90°.

13 Jesse and Kristy each bought a pizza of the **same size**.

- Jesse's pizza was cut into 3 equal slices. She ate 1 slice.
- Kristy's pizza was cut into 6 equal slices. She ate 2 slices.

Explain using words, numbers, or pictures how Jesse did or did not eat the same amount of pizza as Kristy.

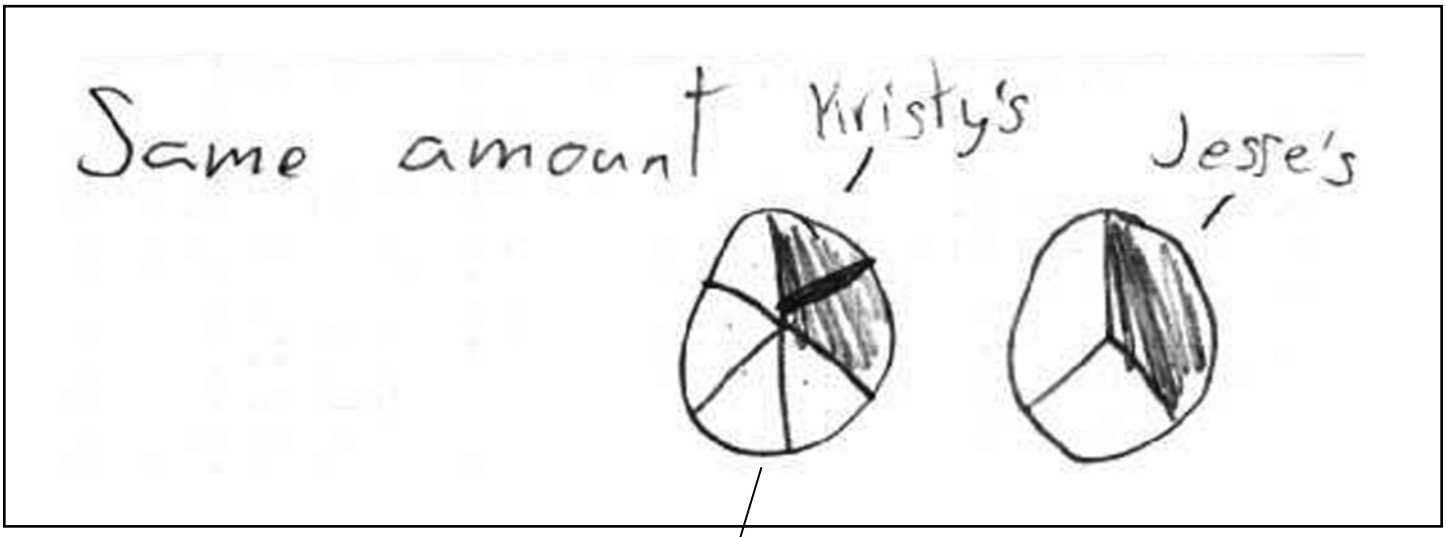
Scoring Guide:

Score	Description
2	Student uses words, numbers, or pictures to show that Jesse and Kristy ate the same amount of pizza.
1	Student demonstrates an understanding of fractions; explanation may be vague and/or contain errors.
0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.
Blank	no response

Sample Response:

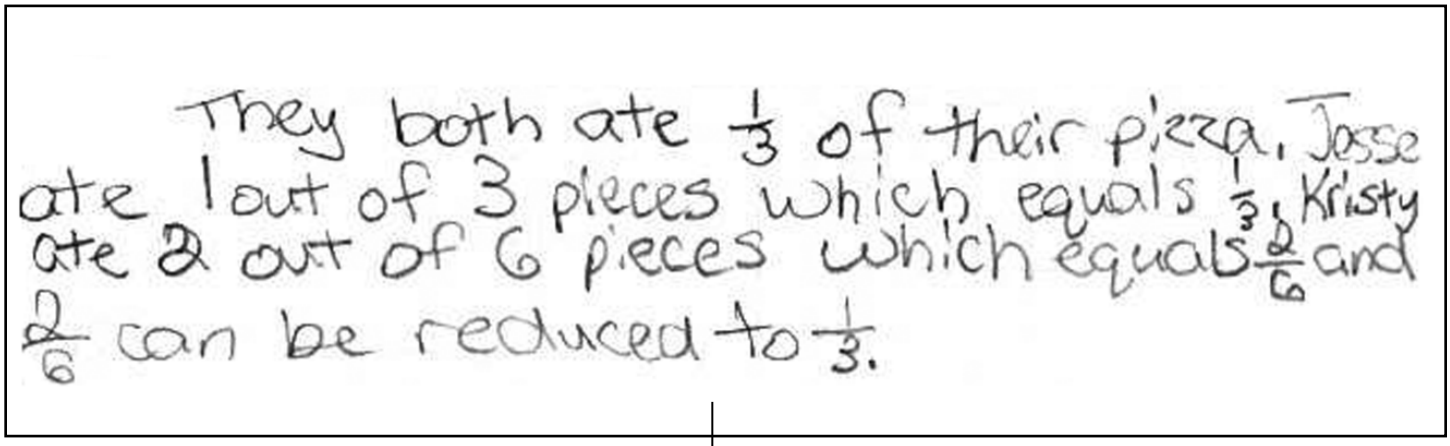
Student draws two circles: one cut into 3 equal slices with one slice shaded and the second one cut into 6 equal parts with two slices shaded.
Student says that the two areas are equal.
OR
Student says Jesse ate $\frac{1}{3}$ of a pizza and Kristy ate $\frac{2}{6}$ of a pizza and $\frac{1\times 2}{3\times 2} = \frac{2}{6}$.

Score Point 2 (Example A)



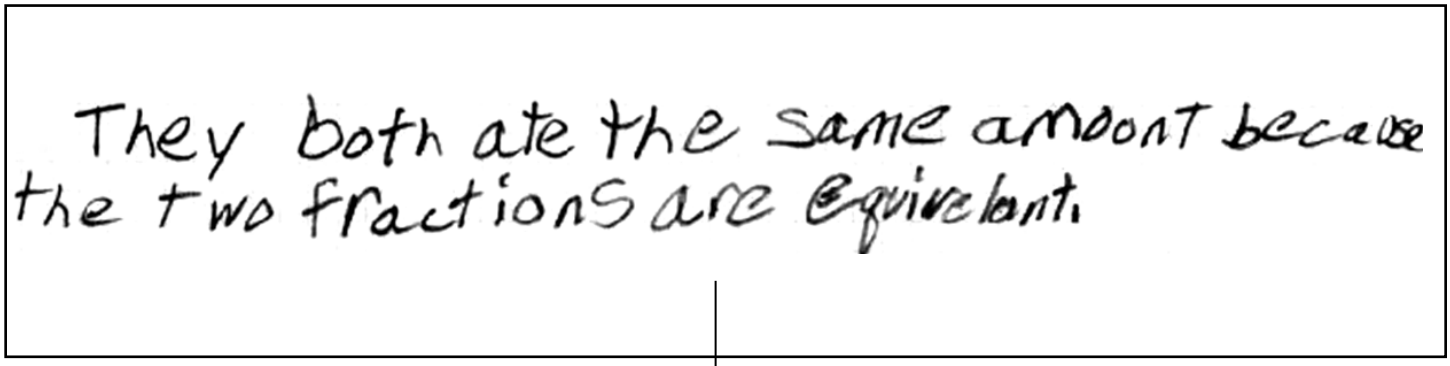
Student uses pictures to show that Jesse and Kristy ate the same amount. (2 points)

Score Point 2 (Example B)



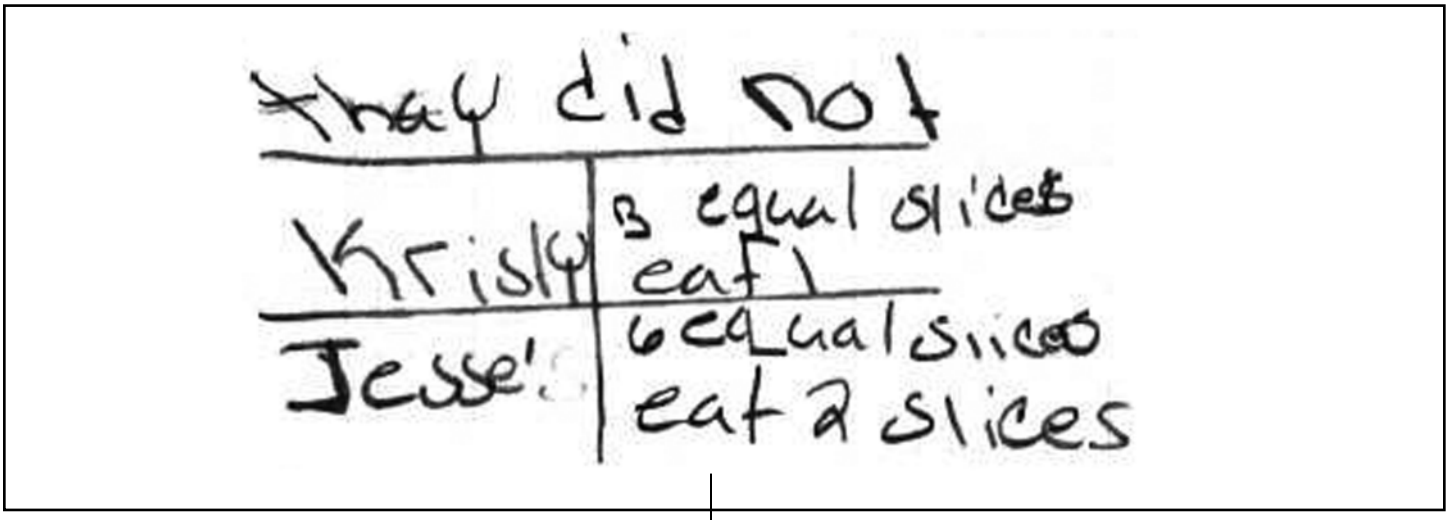
Student uses words to show that Jesse and Kristy ate the same amount. (2 points)

Score Point 1 (Example A)



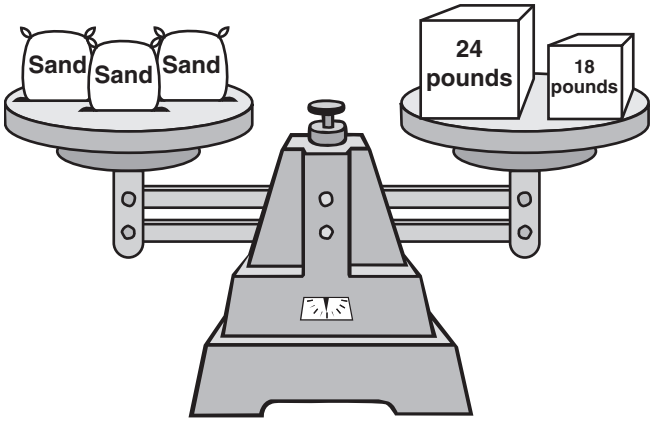
Student states the fractions are equivalent (1 point) but neither lists the fractions nor shows how they are equivalent.

Score Point 0 (Example A)



Student's answer is incorrect.

14 The scale shown below is balanced.



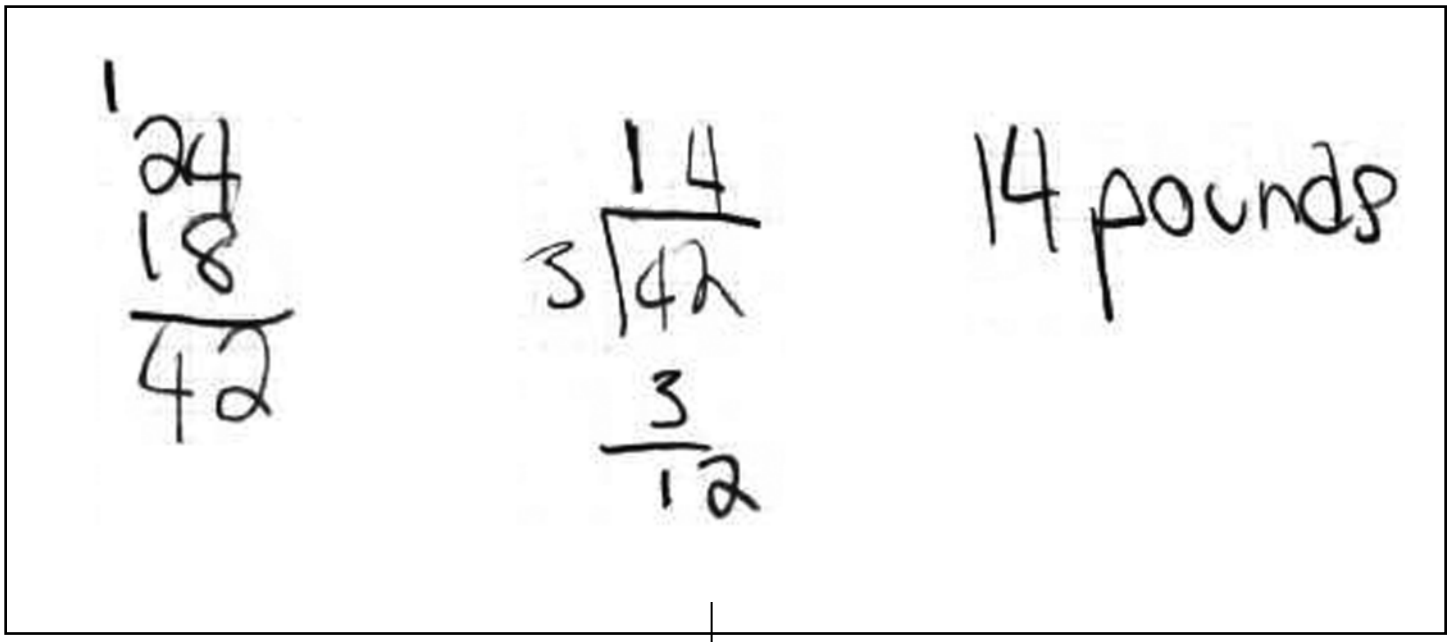
Each bag of sand weighs the same. How many pounds does one bag of sand weigh? Show your work or explain how you know.

Scoring Guide:

Score	Description
2	Student correctly answers, **14 (pounds)**, with work shown or explanation given.
1	Student gives correct answer but no work or explanation. OR Work or explanation shows correct strategy in solving the problem with a computation error.
0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.
Blank	no response

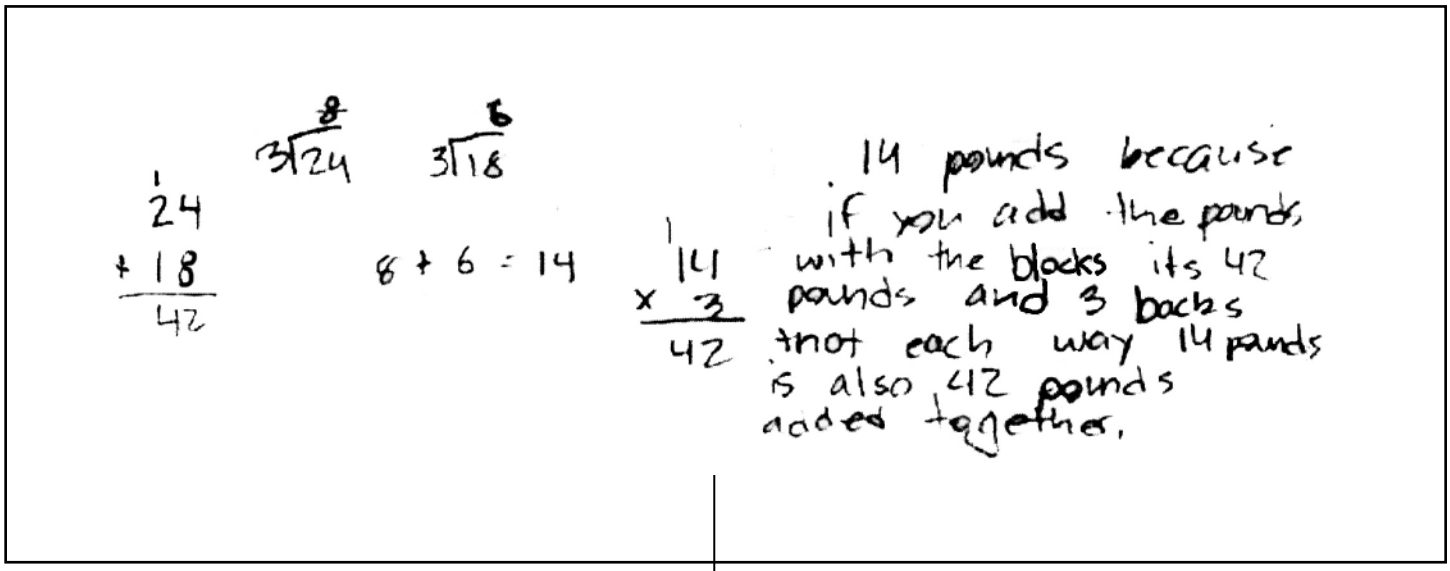
Sample Response:
24 + 18 = 42 and 42 ÷ 3 = 14
OR
Student divides each weight on the right side by 3 and then adds.
(24 ÷ 3 = 8, 18 ÷ 3 = 6, 8 + 6 = 14 pounds)

SCORE POINT 2 (EXAMPLE A)



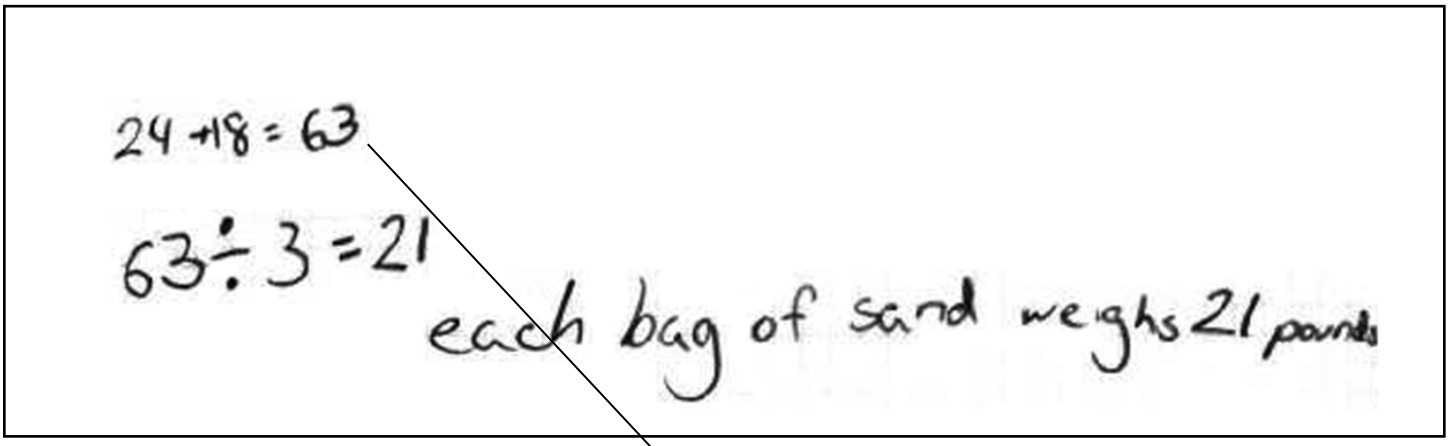
Student shows appropriate work and answer is correct. (2 points)

SCORE POINT 2 (EXAMPLE B)



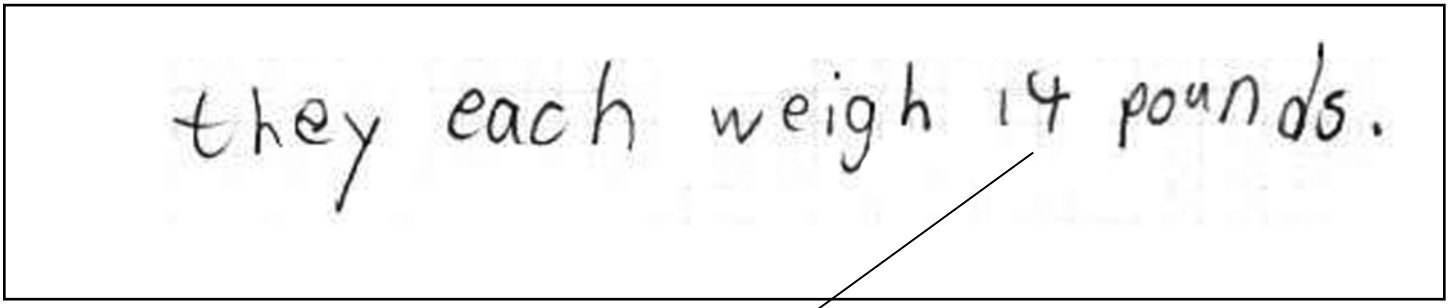
Student shows appropriate work and answer is correct. (2 points)

SCORE POINT 1 (EXAMPLE A)



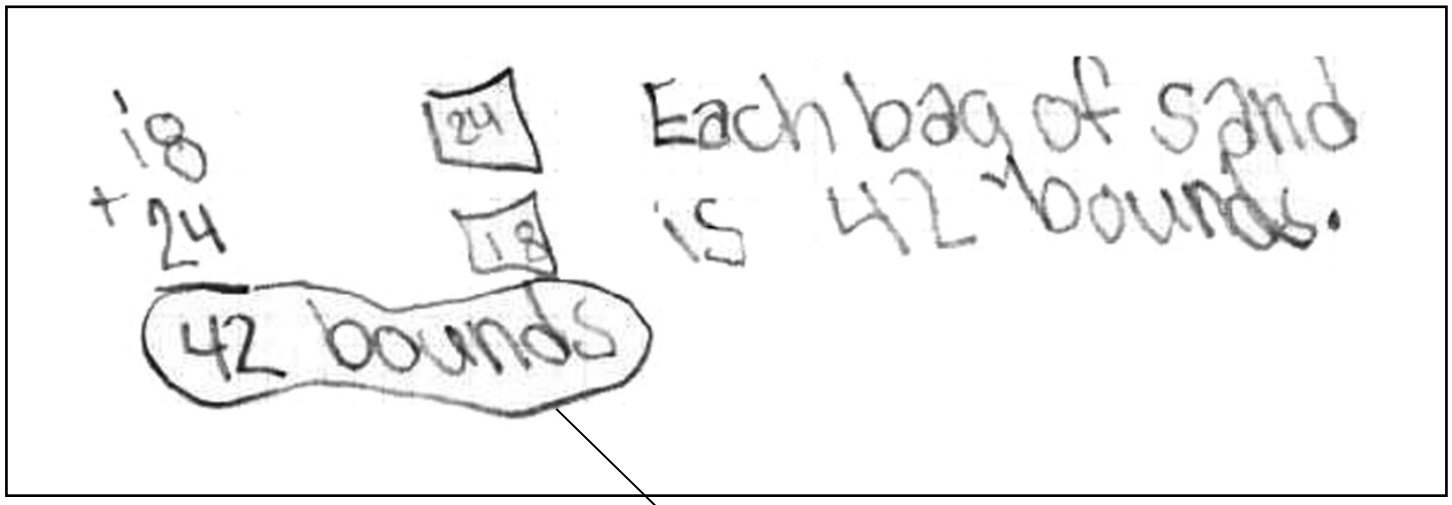
Student shows an appropriate strategy with a computation error. (1 point)

SCORE POINT 1 (EXAMPLE B)



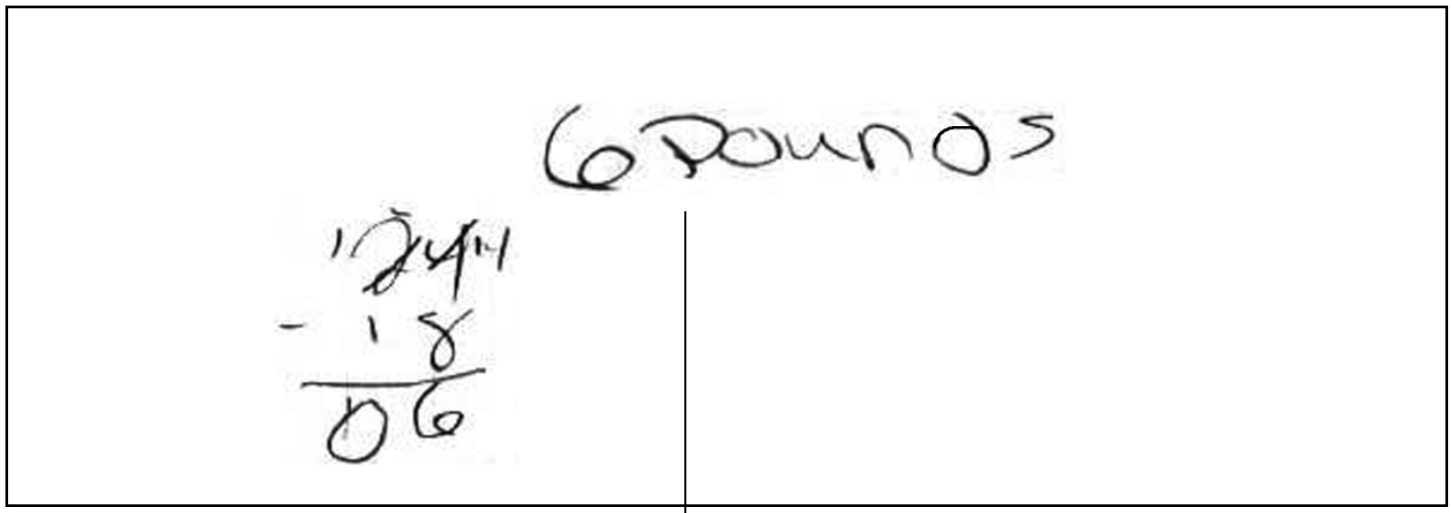
Student's answer is correct (1 point) without work or explanation (0 points).

Score Point 0 (Example A)



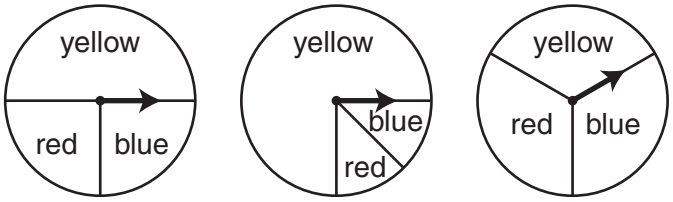
Student's answer is not correct (0 points) and work does not show a correct strategy (0 points).

Score Point 0 (Example B)



Student's answer is not correct (0 points) and work does not show a correct strategy (0 points).

15 Look at these spinners.



Spinner A **Spinner B** **Spinner C**

Julie, Greg, and Lori each used a different spinner to record the results of 40 spins.

a. This table shows Julie's results.

Julie's Spinner Results

Color	Frequency
yellow	12
blue	14
red	14

Which spinner did Julie **most likely** use? Show your work or explain how you know.

b. This table shows Greg's results.

Greg's Spinner Results

Color	Frequency
yellow	30
blue	5
red	5

Which spinner did Greg **most likely** use? Show your work or explain how you know.

c. Lori used the remaining spinner. Make a table to show the **most likely** results of Lori's 40 spins. Explain your reasoning.

Scoring Guide:

Score	Description
4	6 points
3	4 or 5 points
2	2 or 3 points
1	1 point
0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.
Blank	no response

Training Notes:

Part a: 2 points — for the correct answer, **Spinner C**, with work shown or explanation given
OR
1 point — for the correct answer, no work shown or explanation given
or
for correct strategy shown in solving the problem

Part b: 2 points — for the correct answer, **Spinner B**, with work shown or explanation given
OR
1 point — for the correct answer, no work shown or explanation given
or
for correct strategy shown in solving the problem

Part c: 2 points — for completing a table that shows 40 spins with about ½ spins yellow, ¼ spins red, and ¼ spins blue, with work shown or explanation given
OR
1 point — for the correct answer, no work shown or explanation given
or
for correct strategy shown in solving the problem

Sample Response:

Part a: In Julie's table, the colors occurred about the same number of times. In Spinner C each color is equally likely.

Part b: In Greg's table, the color yellow occurred a lot more than half (about ¾ of the time) and the other two colors occurred the same number of times. In Spinner B, ¾ of the spinner is yellow, and red and blue have an equal share of the rest.

Part c:

Lori's Spinner Results

Color	Frequency
yellow	20
blue	10
red	10

Half of spinner A is yellow, so I made 40 ÷ 2 = 20 spins yellow in the table. One fourth of spinner A is red and one fourth blue, so I made 40 ÷ 4 = 10 spins for red and blue. (OR I noticed blue and red should have the same amount. Since I made yellow 20 spins, then red and blue should each be (40 – 20) ÷ 2 = 10 spins).

SCORE POINT 4 (EXAMPLE A)

a- spinner c because it has an even amount of red and blue, it also has more red and blue, (when put together) than yellow, more points were scored with red + blue than yellow, and red and blue were scored the same amount

b. spinner b because he scored mostly yellow, and the same amount of red and blue, he scored yellow the most and red and blue the same amount of times.

c. -

yellow	20
red	10
blue	10

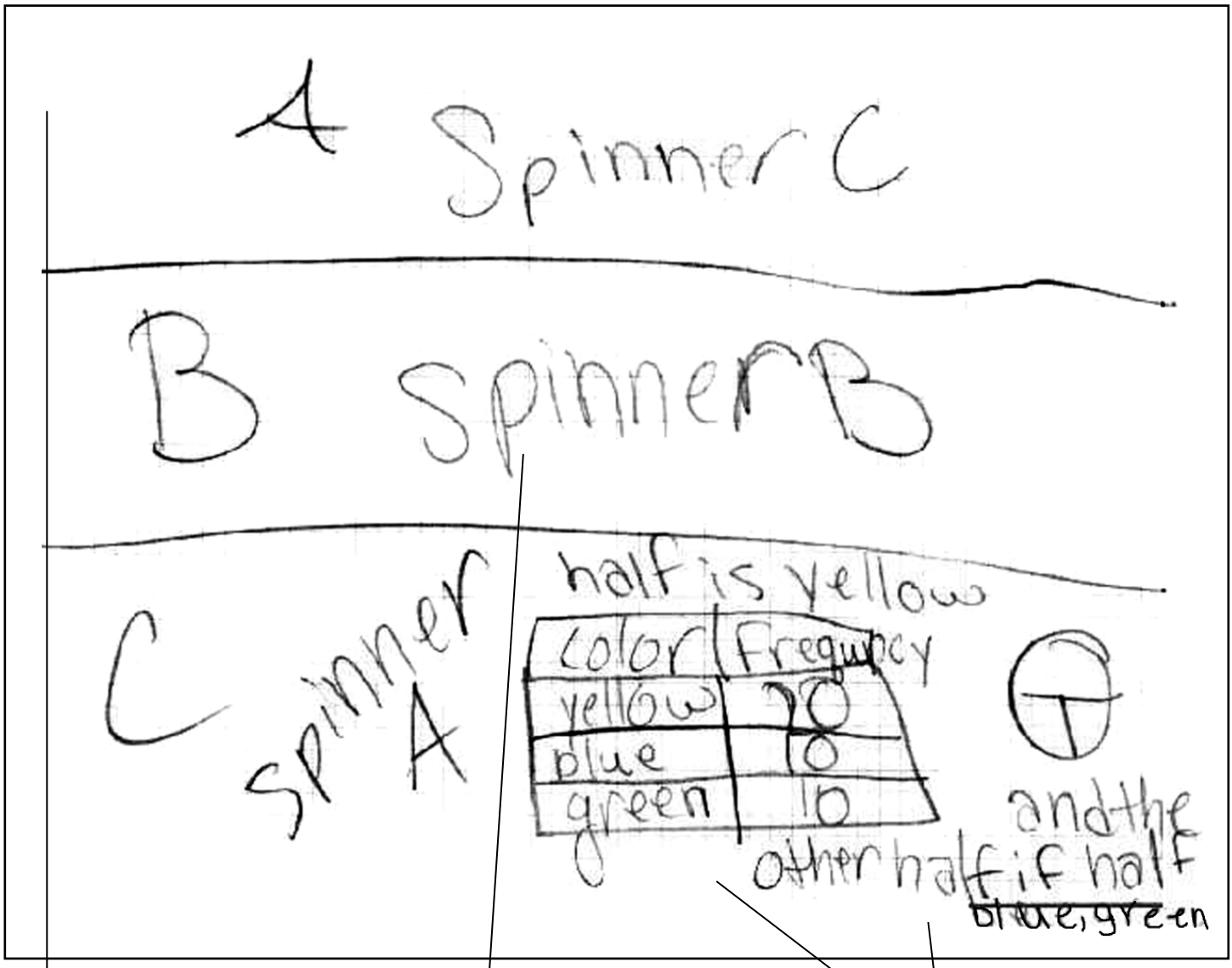
I chose yellow 20 times because 20 = 1/2 of 40 and yellow takes up 1/2 of the board. With red and blue I made 10 because they = 1/4 of the board and 10 = 1/4 of 40.

a) Student's answer is correct with explanation. (2 points)

c) Student gives a correct table with explanation. (2 points)

b) Student's answer is correct with explanation—"scored mostly yellow, and the same amount of red and blue" —addresses that yellow was landed on more than red and blue combined, and eliminates Spinner A as an option. (2 points)

SCORE POINT 3 (EXAMPLE A)



a) Student's answer is correct without work or explanation. (1 point)

b) Student's answer is correct without work or explanation. (1 point)

c) Student gives a correct table with explanation. Note: Changing red to green did not affect the score. (2 points)

SCORE POINT 2 (EXAMPLE A)

a. C because there is more red and blue, so it gives you a better chance at them.

b. B because he got yellow so much.

c.

Color	Frequency
red	20
blue	10
yellow	10

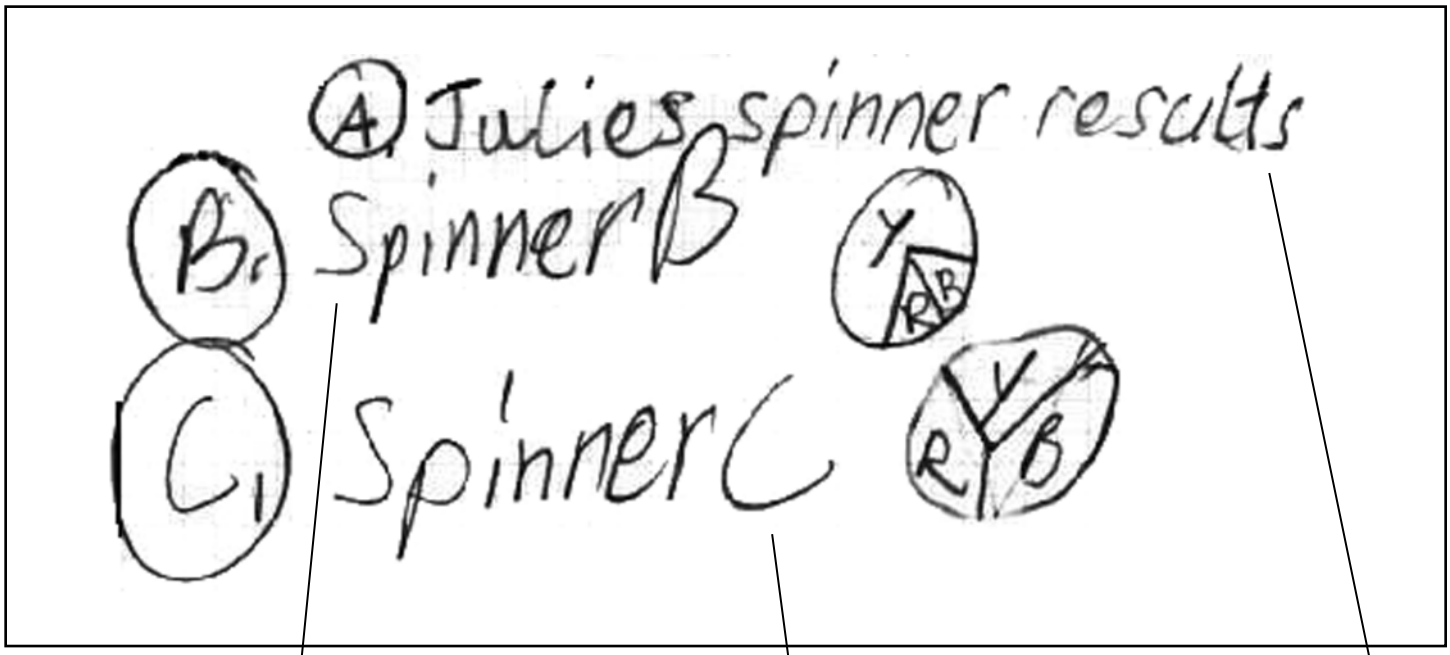
The yellow is the biggest but it's not that much bigger.

a) Student's answer is correct (1 point), but explanation is not sufficient (0 points).

c) Student's answer is not correct (0 points) and explanation is not sufficient (0 points).

b) Student's answer is correct (1 point), but explanation is not sufficient (0 points).

Score Point 1 (Example A)

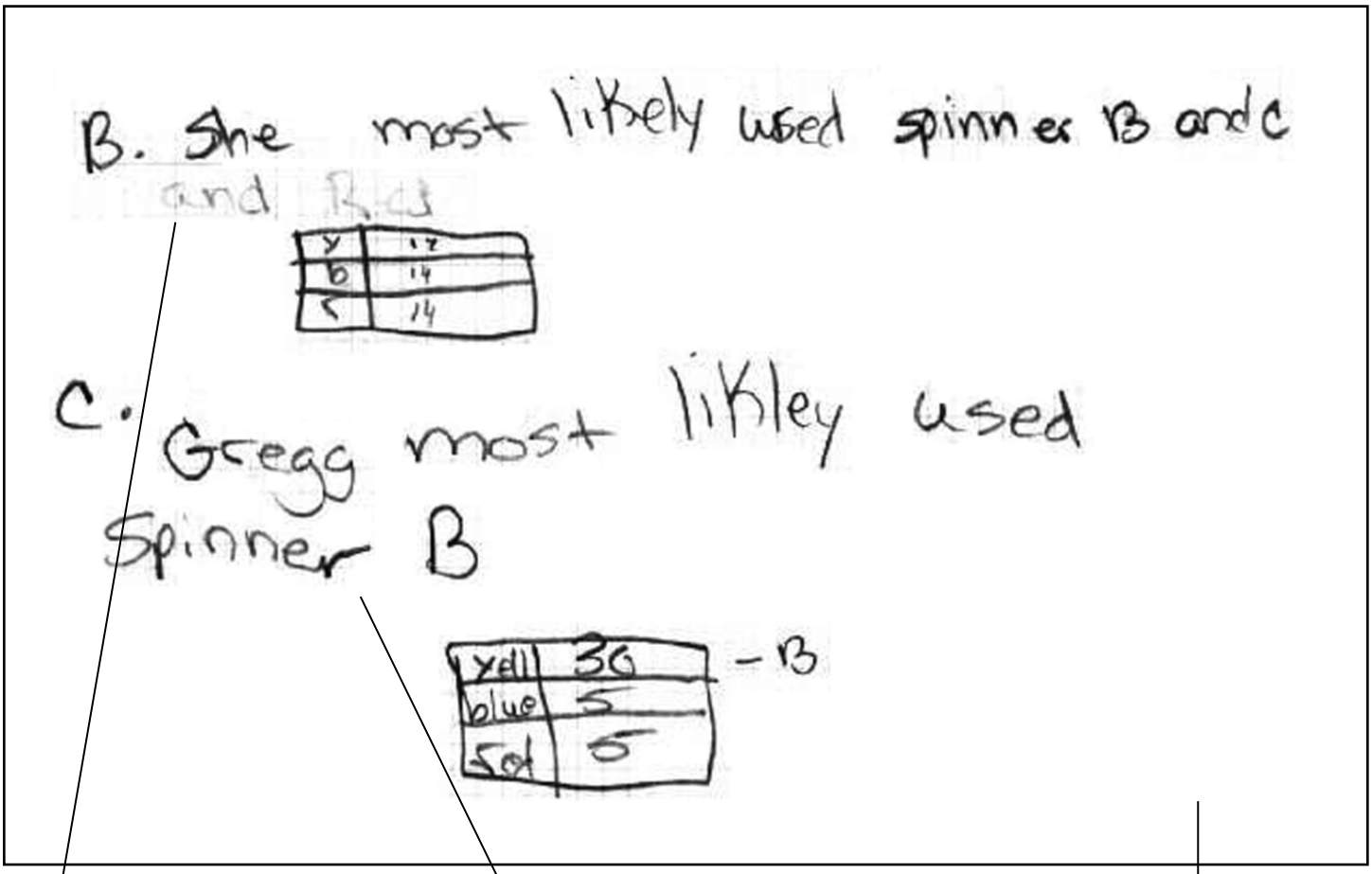


b) Student's answer is correct without work or explanation. (1 point)

c) Student does not give a correct table and does not show work or give an explanation. (0 points)

a) Student gives neither an answer nor a strategy. (0 points)

SCORE POINT 1 (EXAMPLE B)

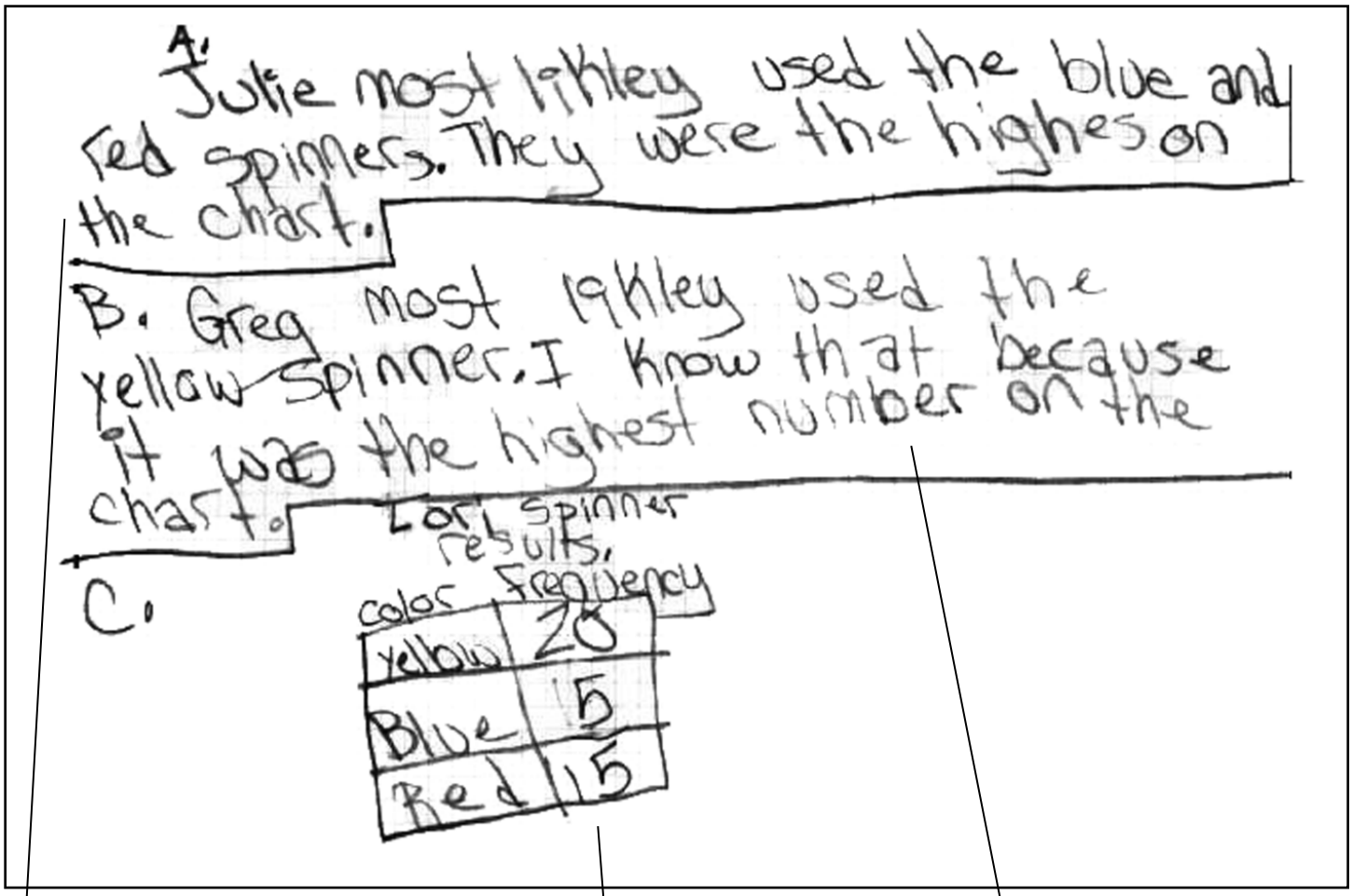


a) Student's answer is not correct (incorrectly labeled "B") and does not show a strategy. (0 points)

b) Student's answer (incorrectly labeled "C" but refers to "Gregg") is correct without work or explanation. (1 point)

c) Student's response is missing. (0 points)

SCORE POINT 0 (EXAMPLE A)

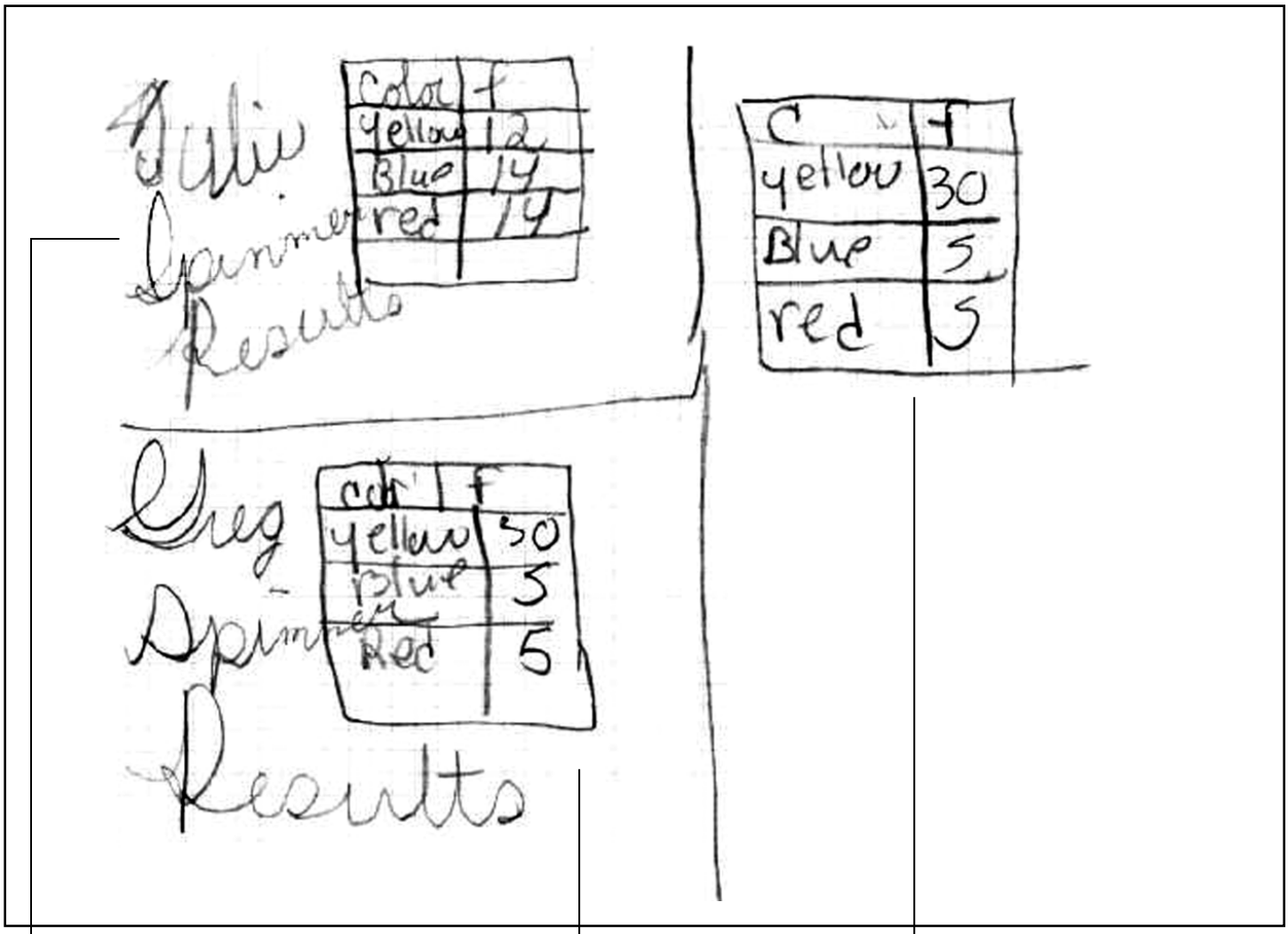


a) Student's answer is not correct and explanation is not sufficient. (0 points)

c) Student does not give a correct table and does not show work or give an explanation. (0 points)

b) Student's answer is not correct and explanation is not sufficient. (0 points)

SCORE POINT 0 (EXAMPLE B)



a) Student only repeats the information given. (0 points)

b) Student only repeats the information given. (0 points)

c) Student does not give a correct table and does not show work or give an explanation. (0 points)